

a map drawn from Bessel's measures, I had no difficulty in identifying the stars as those which Bessel has marked by the following numbers:—

| No. 1 | No. 17 (bright) |
|-------------|----------------------------------|
| 2 (bright) | 29 |
| 4 | 34 (brightest = <i>γ Tauri</i>) |
| 4 (bright) | 38 |
| 11 (bright) | 41 (bright) |
| 13 | 42 (not quite so bright) |

No. 42 is the seventh star, which is seen only by acute eyes.

Observations of Mars. By W. Lassell, Esq.

I have the pleasure to present to the Society herewith a series of drawings of the planet *Mars* during the late favourable opposition.*

The more deeply-shaded parts of the series are generally the blue and neutral-tint portions—the lighter shades represent the ruddy or deep-orange parts—and the unshaded parts, the brightest portions, which are generally about the circumference. The faint lines exterior to the disk represent approximately the position of the ecliptic with respect to the phenomena of its surface. The times given are Greenwich Mean Time.

The drawings are *tracings* of the original drawings made at the telescope's side. Towards the North Pole there was generally a bright part, less marked, however, than the conspicuous spot at the South Pole. This is most striking, as might be expected, in those phases in which the neighbouring portion is most shaded. On the 22d Sept. (No. 3 drawing) a bright marginal crescent, on the following side, extended nearly over half the circumference. No. 4 (24th Sept.) was drawn from a very sharp image and with great care. On the 25th Oct. (No. 15) the long band of white near the North Pole was remarkably plain. The phenomena were best seen with a Power 760. On the 27th Oct. (No. 16) the planet exhibited with 760 a very fine view of delicate markings, very difficult to draw. There seemed to be a protuberance of the limb about (c), where also the limb was whiter than at the parts adjacent. A long white tract was visible at (b) only a little inferior to the brightness of the white spot at (d). There was a blueish-white district at (a). The dark or neutral-tint portion seemed shaded off there into a lighter hue of the same

* These drawings will probably appear in lithograph in the volume of *Memoirs*.—ED.

colour—not at all into the coppery tinge. The ruddy portion was much more uniform, as indeed it generally is, than the blue or green portion. The only distinct mark I saw upon it was a curved streak near the South Pole, which appeared to be a very slight shade of the blue colour. Several of these remarks apply generally to most of the drawings; but I make them here because the view obtained this evening was one of the very finest I have ever had. Nov. 4th (No. 17), power 760, the planet has already become obviously gibbous. The blue portion has in its darkest part a very irregular and hard outline, which is strikingly analogous to the coast-line of a terrestrial continent, much broken by bays and inlets. I find it impossible to represent its outline faithfully. There are also delicate markings on the red or brown portion near the bright spot, which baffle my skill. The view with this high power is at times surprisingly sharp.

In watching *Mars* for so long a period I expected to have been able to observe returns of the same phase according to the law of rotation, but I have not found it possible to do so except very imperfectly. To watch the progress of any individual spot during a few hours observation on any one evening, or after the interval of one day or two, is easy enough; but when the same phases ought again to occur after an interval of time, I find they can rarely be certainly recognised.

For instance, the phase given

Sept. 13, ought nearly to recur Oct. 22

| | | | |
|---------|---|---|--------|
| „ 20 | „ | „ | „ 29 |
| „ 22 | „ | „ | „ 31 |
| „ 24 | „ | „ | Nov. 2 |
| „ 25 | „ | „ | „ 3 |
| „ 27 | „ | „ | „ 5 |
| „ 29 | „ | „ | „ 7 |
| Oct. 11 | „ | „ | „ 19 |
| „ 13 | „ | „ | „ 21 |
| „ 15 | „ | „ | „ 23 |
| „ 17 | „ | „ | „ 25 |
| „ 18 | „ | „ | „ 26 |
| „ 21 | „ | „ | „ 29 |

but if the drawings nearest these dates are severally compared, the resemblance is certainly traceable in most instances, but not with that uniformity which would indicate an unchanged surface. I therefore think, as has been justly remarked by Mr. Grove in the *Monthly Notice* for December, that if the variously coloured portions do generally represent land and water, their aspect must be greatly modified by the transit of clouds of great extent, density, and variety of form.

It will be seen that there is much less detail in the later drawings, which are scarcely comparable with the early ones on account of the greatly increased distance of the planet.

Proceedings of the Madras Observatory. By Norman Pogson, Esq., Director of the Observatory.

The following Memorandum, relating to the current and the proposed work of the Madras Observatory, has been transmitted by Mr. Pogson to the Astronomer Royal:

"The proceedings of the Madras Observatory during the past two years, although not yet before the public, nor indeed likely to be so at present, may not be without sufficient interest to warrant a brief recapitulation. The new Transit Circle was finally completed and commenced its career of service on the 1st June, 1862. It yields the most satisfactory results as regards steadiness in all its corrections, and is being employed for the determination of the positions of comparison stars used for equatorial observations, of all observable variable stars, of such small planets as come to opposition south of the equator, and generally for the formation of a Catalogue of new small southern stars as zero points for the Southern Celestial Survey, now in hand. This latter work, announced in the *Monthly Notice* of last June, was commenced on the first night of this year, and will be proceeded with rapidly, aided, it is hoped, by an experienced assistant whom it is intended to request Prof. Argelander to nominate, so soon as the sanction already granted by the local government has been confirmed by the supreme authorities.

"The Variable-Star-Atlas is just beginning to be engraved, and as from its nature it can only be proceeded with on perfectly clear moonless nights, must necessarily be some time in hand—interfering certainly to some extent with the Southern Survey, but not being in any way delayed by the contemporaneous execution of that far higher and more comprehensive work now fairly in hand. A useful Catalogue of Stars observed under the management of Lieut.-Col. Worster, when acting Astronomer, is in an advanced state of reduction. Observations of the fine comets of 1858, 1861, and 1862, and of several small planets, await the determination of the comparison stars employed by the Transit Circle; all which will, it is hoped, be secured in the ensuing fine season.

"The Magnetical and Meteorological records, carried on hourly for the twenty years 1831–1860, are wearily advancing as regards reduction and publication. The former are printed up to 1854, the latter a year further on. These heavy arrears